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Veneer Industry and Timber Use, **North Central** Region, 1984

James E. Blyth and W. Brad Smith



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VENEER INDUSTRY AND TIMBER USE, NORTH CENTRAL REGION, 1984

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HIGHLIGHTS

Lake States

- Lake States loggers harvested 60.5 million board feet of veneer logs in 1984, down 6 percent from 1980 when the last veneer industry study was made. Principal production declines since 1980 were in aspen, elm, and white oak. Log exports to other States and Canada reached a record high 13.7 million board feet.
- Twenty-eight Lake States veneer mills received 50.2 million board feet of logs in 1984, off 14 percent from 1980. Imports from seven States and Canada climbed after hitting a 35-year low in 1980.
- More than 98 percent of the wood and bark residue generated at Lake States mills in 1984 was used.

Central States

- Central States veneer log production in 1984 was 22.1 million board feet, up 1 percent from 1980.
 Leading species cut were white oak, walnut, and red oak. Exports from the Central States climbed 87 percent from 1980 to 5.7 million board feet.
- From 1980, veneer log receipts at 23 Central States mills rose 1 percent to 33.2 million board feet. Imports of 16.8 million board feet came from 18 other States.
- Disposal of wood and bark residue at mills was not a problem. Industrial fuel was the leading use for this residue.

This report of 1984 veneer log production and receipts in the North Central Region is a continuation of a series begun more than 28 years ago. On a total volume basis, veneer logs are the third most valuable industrial roundwood product harvested, outranked only by pulpwood and saw logs. The last veneer industry study was in 1980.

Current detailed veneer log production¹ and receipt information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. In addition, researchers need veneer log harvest and receipt information for planning projects and for analyzing and appraising the veneer industry.

All known veneer mills in the United States and Canada using North Central States timber reported their veneer log receipts in 1984 by species groups and State of origin. For the wood and bark residue they generated in 1984, they reported (in percent) the disposal of coarse wood residue (chippable), fine wood residue, and bark in six disposal categories. Their cooperation is gratefully acknowledged. Data were collected, using a formal questionnaire, in a cooperative effort by this Station, the Northeastern Forest Experiment Station, and the Indiana Department of Natural Resources. Data are not shown for logs exported to countries other than Canada.

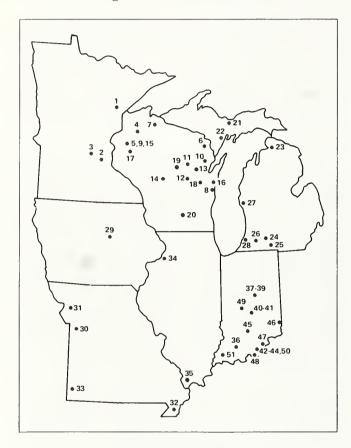
All board feet data in this report have been converted to International 1/4-inch scale by applying a multiplier of 1.14 to all log volumes reported by veneer mills in Doyle scale and applying a multiplier of 1.04 to all log volumes reported by mills in Scribner Dec. C Scale. To convert to Doyle log scale, multiply the International scale volume by 0.8772. To convert to Scribner Dec. C log scale, multiply the International scale volume by 0.9615.

This report presents the results of the survey, analyzes and interprets the data where appropriate, compares the results with 1980 or earlier years, and discusses trends in veneer log production and use. After a brief national overview, the report is divided

¹Production is the volume of veneer logs cut from a specific area; receipts are the volume of veneer logs received by mills in a specific area regardless of geographic source.

into two sections—Lake States (Michigan, Minnesota, and Wisconsin) and Central States (Illinois, Indiana, Iowa, and Missouri)—because different species are grown and used as veneer logs in each area.

Fifty-one veneer mills operated in the region in 1984, one more than in 1980 (fig. 1). Between 1980 and 1984 two mills closed and three new mills opened. Wisconsin and Illinois each had a net gain of one mill; Michigan had a net loss of one mill.



	MINNESOTA	
Number	Name of mill	Location
1	Diamond Match Co.	Cloquet
2	Allen Wood Products, Inc.	Henderson
3	Elk River Box Company	Elk River
	WISCONSIN	
4	Birchwood Lumber & Veneer Co.	Birchwood
5	Birchwood Mfg. Co.	Rice Lake
6	Goodman Forest Ind. Ltd.	Goodman
7	Louisiana-Pacific Corp.	Mellen
8	Eggers Industries	Two Rivers
9	Brunette Ind. Wood Prod.	Rice Lake
10	Linwood, Inc.	Gillett
11	Wisconsin Timber & Land Co.	Matoon

NATIONAL OVERVIEW

National hardwood plywood production in 1984 fell 2 percent below 1983, and fell 6 percent below 1980 to 1.227 million square feet² surface measure.

Housing starts in 1984 climbed 2.4 percent above 1983 to 1,744,700 units, the highest total since 1979.

²Source: U.S. Department of Commerce, Bureau of the Census. Current Industrial Report Series MA-24F.

	WISCONSIN	
Number	Name of mill	Location
12	Marion Plywood Corp.	Marion
13	Weber Veneer & Plywood Co.	Shawano
14	Weyerhaeuser Co.	Marshfield
15	Brunette Box & Veneer	Rice Lake
16	Dufeck Mfg. Co.	Denmark
17	Ebner Box Factory	Cameron
18	Seymour Woodenware Co.	Seymour
19	Hatley Veneer Co.	Hatley
20	Fox-Haase Mfg. Inc.	De Forest
	MICHIGAN	
21	Cliffs Forest Products Co.	Munising
22	Anthony & Co.	Escanaba
23	Manthei Bros.	Petosky
24	A. C. Hensel Mfg. Co.	Augusta
25	International Veneer Co.	Coldwater
26	Fruit Growers Package Co.	Paw Paw
27	Michigan Crate & Basket	Shelby
28	Riverside Package Co.	Riverside
	IOWA	
29	R. S. Bacon Veneer Co.	Grundy Center
	MISSOURI	
30	Pleasant Hill Veneer Corp.	Pleasant Hill
31	Missouri Valley Walnut Co.	St. Joseph
32	Tipton Box Co.	Caruthersville
33	Crumbliss Wood Products	Neosho
	ILLINOIS	
34	Swords Veneer & Lumber Co.	Rock Island
35	Lawrence Box & Basket	Cobden
	INDIANA	
36	Jasper Veneer Mills	Jasper
37	Central Veneer Co., Inc.	Indianapolis
38	Curry-Miller Veneers, Inc.	Indianapolis
39	Indiana Veneers, Inc.	Indianapolis
40	David R. Webb Co.	Edinburg
41	Amos-Hill Veneer Co.	Edinburg
42	B. L. Curry & Sons	New Albany
43	Chester B. Stem, Inc.	New Albany
44	Adams Custom Veneer Co.	New Albany
45	National Veneer & Lumber Co.	Seymour
46	Pierson-Hollowell Co., Inc.	Lawrenceburg
47	Roberts & Strack Veneer Co.	Clarksville
48	Norstram Veneers	Mauckport
49	Theising Veneer Co., Inc.	Mooresville
50	New Albany Box & Basket Co., Inc.	New Albany
51	Evansville Veneer Co.	Evansville

Figure 1.—Location of active veneer mills in the North Central Region, 1984.

In 1980, only 1,328,000 housing units were started. Housing starts are a major indicator of hardwood plywood demand in interior walls, kitchen and vanity cabinets, flush doors, flooring, and furniture.

Domestic producers are concerned about hardwood plywood imports. Japan was the largest exporter of hardwood plywood to the U.S. 25 years ago, and Korea was the leader 15 years ago. During the last 5 years Indonesia became the largest hardwood plywood exporter to the U.S. In 1980 Indonesia had only 29 hardwood plywood mills, compared with 95 mills in 1984; installed capacity rose 173 percent during this period. Indonesia has begun to manufacture door skins, and may become the primary supplier of skins to the American flush door industry.

LAKE STATES

Production

During 1984 loggers cut 60.5 million board feet of veneer logs in the Lake States, down 3.7 million board feet from 1980. Sixty-two percent of the volume was supplied by three species:

Species	Million board feet
Red oak	16.9
Hard maple	12.3
Aspen	8.3

Major production declines since 1980 were in aspen (12.0 million board feet), elm (2.8 million board feet), and white oak (2.3 million board feet). Elm production continued to fall because Dutch elm disease has wiped out much of the Lake States elm resource. Output of red oak climbed 6.2 million board feet from 1980 to a record 16.9 million board feet. Demand for ash was the highest in more than 30 years.

Log exports rose to a record 13.7 million board feet. By volume, principal export markets were:

Destination	Million board feet
Canada	8.5
Ohio	2.1
Indiana	1.8

Illinois, Iowa, Missouri, Kentucky, and West Virginia received the remaining export log volume.

Michigan producers cut 31.8 million board feet of veneer logs, a decline of 14 percent since 1976, but more than half of the total Lake States output. Hard maple, red oak, and pine accounted for 71 percent of the Michigan harvest. Pine harvesting surged from

240,000 board feet in 1980 to 6.4 million board feet in 1984 because of new market opportunities. Closure of a mill was a major reason for aspen output falling from 20.0 million board feet in 1980 to 270,000 board feet in 1984. Out-of-State markets took nearly two-thirds of Michigan's output. Pine, hard maple, and red oak were the dominant species shipped out-of-State.

Red oak and aspen accounted for more than threefifths of Wisconsin's harvest of 23.0 million board feet. Exports to Michigan from Wisconsin were nominal compared to one-quarter of the harvest shipped to Michigan in 1980. Total production increased 2.1 million board feet from 1980.

Principal species cut in Minnesota were aspen (2.9 million board feet) and red oak (1.6 million board feet). Together they accounted for more than three-fourths of the total Minnesota harvest of 5.7 million board feet.

Mill Receipts

Lake States veneer mills received 50.2 million board feet of logs in 1984, down 8.5 million board feet from 1980. Major declines in receipts were in aspen, elm, and hard maple. Imports rose after hitting a 35-year low in 1980 and after falling for all reported years since 1966. However, imports from Canada fell to a nominal level.

Michigan receipts at eight mills plunged to about one-half the level in 1980, partially as a result of a major mill closure. The Michigan decline was concentrated in aspen. In the Minnesota-Wisconsin area, receipts climbed by 5 million board feet from 1980; gains were mainly in aspen and red oak.

Mill Residue³

More than 98 percent of the mill residue generated in each class (coarse, fine, and bark) during 1984 was used. Coarse residue was used mainly for industrial fuel (45 percent), domestic fuel (26 percent), and miscellaneous products such as small dimension and specialty items (23 percent). Industrial fuel was the primary use for fine residue and bark.

³Mill residue generated at veneer mills is classed as: (1) bark; (2) coarse (wood)—suitable for chipping, such as veneer cores; (3) fine (wood)—not suitable for chipping such as veneer clippings.

Industry Outlook

Lake States veneer log production will depend heavily on the strength of the new housing and remodeling industries, the strength of the American dollar, the ability of foreign plywood producers to compete in our markets, the degree of competitive inroads by the flakeboard industry, and the ability of Lake States veneer mills to control their production costs and find market niches for specialty veneers. Lake States veneer log production will probably remain near current levels during the next 2 or 3 years if our gross national product (GNP) has real annual growth of 2 to 4 percent.

As pine plantations mature in the Lake States, use of pine for veneer may continue to increase. Demand for veneer in containers is likely to continue dropping.

CENTRAL STATES

Production

Central States loggers cut 22.1 million board feet of veneer logs in 1984, up 1 percent from 1980 and the second lowest annual recorded harvest in the last 29 years.

Three species furnished three-fourths of the volume:

Species	Million board feet
White oak	7.6
Walnut	5.2
Red oak	4.0

After falling to 1.3 million board feet in 1970, red oak output has risen steadily (except in 1980) and is one of the preferred species for furniture. Walnut output in 1984 was about one-third of the peak production in 1968, when it was in high demand for furniture. Cottonwood and soft maple veneer log production remained low; both are container veneer species.

Major production changes between 1980 and 1984 were:

Species	Thousand board feet
White oak	-1,020
Red oak	+580
Cottonwood	+544

Exports expanded 87 percent from 1980 to 5.7 million board feet; primary purchasers were in Ohio (51 percent), Wisconsin (22 percent), and Michigan (16 percent).

Indiana supplied three-fifths of the Central States veneer log harvest, and 73 percent of the Indiana log volume remained in the State. Each of the other States cut between 2.1 and 3.3 million board feet. Indiana production increased 24 percent from 1980, Missouri production increased nominally, and production dropped in Illinois and Iowa.

Red oak and walnut output was more concentrated in Indiana in 1984 than in 1980. Missouri increased its share of the cottonwood harvest.

Mill Receipts

Twenty-three Central States veneer mills received 33.2 million board feet of veneer logs in 1984, up 1 percent from the 1980 total. Eighteen States, from all areas except the Far West, supplied 16.8 million board feet of logs to the Central States. Kentucky, Pennsylvania, and Onio each furnishing more than 2 million board feet. Major imports included white oak from Tennessee, Kentucky, and Ohio; red oak from Pennsylvania, Michigan, and Kentucky; pecan from Louisiana; and black cherry from Pennsylvania. Other States furnishing veneer logs were Wisconsin, Oklahoma, Arkansas, Mississippi, Texas, Kansas, Minnesota, Alabama, Virginia, New York, Maryland, and Nebraska.

Indiana's 16 veneer mills consumed 84 percent of the veneer log receipts in the Central States, including more than 90 percent each of the ash, black cherry, hard maple, pecan, soft maple, yellowpoplar, and sycamore.

Mill Residue

Wood and bark residue have not been a disposal problem since 1974. Ninety-six percent of the coarse wood residue, 87 percent of the fine wood residue, and 97 percent of the bark were used in 1984. Industrial fuel continued to be the leading use for each residue category; other uses were in pulp manufacturing, mulch, livestock bedding, and domestic (household) fuel.

Industry Outlook

Most factors affecting future hardwood veneer log output in the Lake States will also affect future output in the Central States. Foreign competition is likely to be a major threat to Central States veneer mills. Container veneer log markets were stronger in 1984 than in 1980, but will continue to face severe competition from plastics and other substitutes.

Table 1.--Production and imports of veneer logs, Lake States, 1984 $({\rm In\ thousand\ board\ feet})^{{\underline 1}/{}} -$

			Production	by States ^{2/}		Imports			
Species and destination	Total 3/receipts—	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.	Canada	Total imports	
Pine Minnesota-Wisconsin Exported ⁴ /	162	110 6,287		52 	162 6,287				
Total	162	6,397		52	6,449				
Ash Michigan Minnesota-Wisconsin Exported ⁴ /	824 655 	824 313 53	 40 	 271 5	824 624 58	31 		31	
Total	1,479	1,190	40	276	1,506	31		31	
Aspen Michigan Minnesota-Wisconsin Total	114 8,143 8,257	114 156 270	2,897 2,897	5,090 5,090	114 8,143 8,257				
Basswood	0,237		2,077	3,000	0,237				
Michigan Minnesota-Wisconsin	269 2,198	269 147	 295	1,615	269 2,057	141		141	
Total	2,467	416	295	1,615	2,326	141		141	
Beech Michigan Minnesota-Wisconsin Exported ⁴ /	262 278	262 230 235	 	48	262 278 235	 		 	
Total	540	727		48	775				
Black cherry Michigan Minnesota-Wisconsin Exported ⁴ /	170 6 	71 135	 	 6 22	71 6 157	99 	 	99 	
Total	176	206		28	234	99		99	
Butternut Exported4/ Total				<u>1</u>	1			·	
Cottonwood Michigan Minnesota-Wisconsin	456 595	399	 429	 166	399 595	57 		57 	
Total	1,051	399	429	166	994	57		57	
Elm Michigan Minnesota-Wisconsin Exported ⁴ /	6 418	6 104 32	22	314 42	6 418 96	 	 	 	
Total	424	142	22	356	520				
Hard maple Michigan Minnesota-Wisconsin Exported4/	4,168 6,625	4,168 4,157 1,445	26 	2,417 41	4,168 6,600 1,486	25 	 	25 	
Total	10,793	9,770	26	2,458	12,254	25		25	
Paper birch Michigan Minnesota-Wisconsin Exported ⁴ /	827 508	820 262 112	 69 	7 177	827 508 112	 	 	 	
Total	1,335	1,194	69	184	1,447				
	-,,,,,,	-, -, -, -		201					

(Table 1 continued on next page)

			Production	Imports				
Species and destination	Total 3/ receipts—	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.	Canada	Total imports
Pecan								
Minnesota-Wisconsin	34			3	3	31		31
Exported4/		4			4			
Total	34	4		3	7	31		31
Red oak								
Michigan	2,869	2,113	520	104	2,737	132		132
Minnesota-Wisconsin Exported4/	12,177	2,270	960	8,078	11,308	811	58	869
•		2,034	87	757	2,878	040		
Total	15,046	6,417	1,567	8,939	16,923	943	58	1,001
Soft maple	274	274			074			
Michigan Minnesota-Wisconsin	274 1,486	274 75	81	1,299	274 1,455	31		31
Exported4/	1,400	73	01	1,299	1,433			31
Total	1,760	349	81	1,316	1,746	31		31
Sycamore	1,700	377		1,510	1,740			
Michigan	97	80			80	17		17
Total	97	80			80	17		17
Walnut							·····	
Michigan	105	29			29	76		76
Exported4/		221	2	205	428			70
Total	105	250	2	205	457	76		76
White oak								
Michigan	1,953	315			315	1,638		1,638
Minnesota-Wisconsin	300	19	47	79	145	155		155
Exported4/		646		228	874			
Total	2,253	980	47	307	1,334	1,793		1,793
Yellow birch								
Michigan	1,320	1,285		35	1,320			
Minnesota-Wisconsin	2,837	1,542	250	964	2,756		81	.81
Exported4/		42		46	88			
Total	4,157	2,869	250	1,045	4,164		81	81
Yellow poplar	0.2	0.2			0.3			
Michigan -	23	23			23			
Total	23	23			23			
Other hardwoods		70		000	070			
Exported4/		70		900	970			
Total		70		900	970			
All species	10 707	11 252	500		11 710	0.010		0.010
Michigan	13,737	11,052	520	146	11,718	2,019	120	2,019
Minnesota-Wisconsin Exported4/	36,422	9,385 11,316	5,094 111	20,579 2,264	35,058 13,691	1,225	139	1,364
•							139	3,383
Total	50,159	31,753	5,725	22,989	60,467	3,244	139	3,363

 $[\]frac{1}{2}$ International 1/4-inch rule.

 $[\]frac{2}{\text{Vertical}}$ columns of figures under box heading "Production by States" present the amount of veneer logs cut in each State.

 $[\]frac{3}{2}$ Production minus exports plus imports.

 $[\]frac{4}{\text{Veneer logs shipped to States outside the Lake States and to Canada.}}$

Table 2.--Veneer log production and receipts in the Lake States by species, 1980 and 1984 (In thousand board feet) $\frac{1}{}$

		Production	1	Receipts				
Species	1980	1984	Change	1980	1984	Change		
Pine	240	6,449	6,209	240	162	- 78		
Ash	831	1,506	675	805	1,479	674		
Aspen	20,245	8,257	-11,988	19,958	8,257	-11,701		
Basswood	2,072	2,326	254	2,100	2,467	367		
Beech	1,107	775	-332	1,050	540	-510		
Black cherry	229	234	5	77	176	99		
Cottonwood	1,322	994	-328	1,254	1,051	-203		
Elm	3,323	520	-2,803	2,130	424	-1,706		
Hard maple	12,756	12,254	-502	11,941	10,793	-1,148		
Paper birch	1,569	1,447	-122	1,476	1,335	-141		
Red oak	10,687	16,923	6,236	9,749	15,046	5,297		
Soft maple	1,457	1,746	289	1,481	1,760	279		
Walnut	328	457	129	114	105	-9		
White oak	3,647	1,334	-2,313	1,953	2,253	300		
Yellow birch	4,151	4,164	13	4,408	4,157	-251		
Other hardwoods	177	1,081	904	0	154	154		
All species	64,141	60,467	-3,674	58,736	50,159	-8,577		

 $[\]frac{1}{}$ International $\frac{1}{4}$ -inch rule.

Table 3.--Veneer log production by species group for selected years, Lake States, 1946-1984

(In million board feet) $^{1/}$

	Other species	1.1	5/4.7	1.6	6.	4.	9.	9.	1.4	2.0	1.8	1.2	9.	7.	1.4	9.	7.8
	Walnut	;	;	1	0.3	.2	9.	2.3	6.	1.5	1.7	9.	1.4	1.0	7.	٣.	٠,
	Paper birch	;	;	1	;	1	;	;	;	;	1.9	1.2	1.2	1.3	1.2	1.6	1.4
	White	;	;	;	1	;	;	1	;	0.3	.5	٣.	٣.	9.	7.	3.6	1.3
	Red oak	$\frac{4}{1}$ 3.1	$\frac{4}{1}$, 5.1	4/5.5	4/4.5	4/4.8	4/7.6	4/8.9	$\frac{4}{1}$, 6.0	9.1	8.2	8.9	6.7	11.1	11.8	10.7	16.9
	Soft maple	:	;	;	3.7	2.2	5.9	2.2	1.8	1.5	1.2	∞.	1.0	2.0	1.1	1.5	1.7
ies group	Hard maple	$\frac{3}{2}/40.3$	3/23.8	3/20.9	20.1	9.7	10.9	10.5	11.8	13.1	9.4	8.8	9.2	11.7	14.0	12.8	12.3
Species	Elm	16.6	11.5	10.5	9.6	8.9	5.1	5.7	6.3	5.7	5.4	3.8	5.1	6.1	6.7	3,3	.5
	Cotton- wood	0.4	;	2.7	2.1	2.2	1.9	4.	1.4	1.4	1.4	1.3	1.3	1.8	1.4	1.3	1.0
	Yellow birch	2/26.8	2/18.2	$\frac{2}{2}$,17.3	2/20.3	$\frac{2}{2}$, 13.1	2/14.1	$\frac{2}{2}/10.9$	$\frac{2}{2}$,11.3	5,6 /5	8.3	4.4	5.2	4.2	4.5	4.2	4.2
	Beech	5.6	3.1	3.2	5.7	1.8	1.0	٣,	.5	.5	.5	٣.	1.1	.7	1.2	1.1	φ.
	Bass- wood	10.4	10.4	9.2	10.3	7.1	6.2	9.9	0.9	4.5	3.6	3.2	5.9	2.4	2.1	2.1	2.3
	Aspen	4.0	1.4	ొ	∞	1.7	2.1	1.5	9.	.7	9.	1.3	5.6	24.2	21.8	20.2	8.3
	Ash	2.3	;	∞.	7.	9.	1.0	9.	.7	1.1	1.0	4.	9.	6.	1.0	0.8	1.5
	All species	110.6	78.2	72.0	79.0	52.7	54.0	50.5	51.7	6.03	45.5	34.4	42.2	68.7	9*69	64.1	60.5
	Year	1946	1952	1954	1956	1958	1960	1963	1965	1966	1968	1970	1972	1974	1976	1980	1984

 $\frac{1}{2}$ International $\frac{1}{4}$ -inch rule. $\frac{2}{3}$ Includes paper birch. $\frac{3}{4}$ Includes soft maple. $\frac{4}{5}$ Includes white oak. $\frac{5}{5}$ Includes ash and cottonwood.

Table 4.--Lake States veneer log production, receipts, exports and imports for selected years, 1946-1984

(In million board feet) $\frac{1}{}$

Year	Produced in the Lake States and received at Lake States mills	Exported ² /	Imported ^{3/}	Total production in Lake States	Total receipts in Lake States
1946	109.7	0.9	5.9	110.6	115.6
1948	116.0	.8	12.0	116.8	128.0
1950	86.0	•6	15.7	86.6	101.7
1952	77.8	. 4	12.1	78.2	89.9
1954	71.6	.4	12.1	72.0	83.7
1956	78.7	.3	13.4	79.0	92.1
1958	51.5	1.2	6.0	52.7	57.5
1960	51.9	2.1	12.5	54.0	64.4
1963	45.0	5.5	7.7	50.5	52.7
1965	49.0	2.7	7.6	51.7	56.6
1966	45.8	5.1	9.6	50.9	55.4
1968	39.7	5.8	7.9	45.5	47.6
1970	31.4	3.0	5.6	34.4	37.0
1972	37.7	4.5	4.6	42.2	42.3
1974	63.4	5.3	4.1	68.7	67.5
1976	63.3	6.3	3.0	69.6	66.3
1980	56.6	7.5	2.1	64.1	58.7
1984	46.8	13.7	3.4	60.5	50.2

 $[\]frac{1}{2}$ International 1/4-inch rule.

^{2/}From Lake States to other States and Canada

 $[\]frac{3}{F}$ rom other States and Canada into Lake States.

Table 5.--Veneer log receipts in the Lake States by species group for selected years, 1952-1984

_	feet) $^{\pm}$ /
	board
	million
	(In

	Paper Other	birch species	5/5.4	1.6	1.0	4.	6	.5		1.0			1.5 .2		1.3 1.1		
	White	oak	;	;	;	;	;	;	1	.2	.2	.2	.2	.1		2.0	2.3
	Red	oak	4/5.3	$\frac{4}{2}/6.5$	4/5.0	4/5.0	4/8.4	4/9.3	4/9.3	9.7	8.3	7.7	10.1	11.1	12.1	9.7	15.0
	Soft	maple	;	;	4.7	2.5	3.6	5.6	1.9	1.8	1.3	σ.	1.2	2.3	1.4	1.5	1.8
Species group	Hard	maple	3/24.9	$\frac{3}{2}/22.4$	21.9	9.6	12.2	11.1	13.2	12.8	0.6	0.6	9.4	11.9	12.4	11.9	10.8
Speci		Elm	11.7	10.9	10.2	9.5	6.2	4.9	6.3	5.8	5.2	3.8	5.3	5.7	6.3	2.1	4.
,	Cotton-	роом	;	2.7	3.0	2.2	3.3	۲.	2.1	2.3	2.1	1.4	1,3	1.8	1.4	1.3	1.0
	Yellow	birch	$\frac{2}{2}/27.1$	2/25.0	2/28.5	2/17.2	<u>4</u> /18.9	$\frac{2}{2}$, 14.3	$\frac{2}{2}$, 14.5	2/14.7	10.2	6.1	6.3	4.6	4.6	4.4	4.2
		Beech	3.2	3.2	5.7	1.8	6.	۳,	.5	5.	•5	۳,	.7	• 5	1.0	1.0	3.
	Bass-	роом	10.9	10.3	10.6	7.3	8.9	6.7	6.3	4.8	3.9	3.6	3.1	5.6	2.2	2.1	2.5
		Aspen	1.4	٣.	ω.	1.7	2.1	1.6	9.	.7	9.	1.3	2.4	24.3	21.5	20.0	8.3
		Ash	:	0.8	7.	9.	1.1	.7	7.	1.1	1.0	۴,	9.	6.	6.	∞.	1.5
	All	species	89.9	83.7	92.1	57.5	64.4	52.7	9.99	55.4	47.6	37.0	42.3	67.5	66.3	58.7	50.2
		Year	1952	1954	1956	1958	1960	1963	1965	1966	1968	1970	1972	1974	1976	1980	1984

 $\frac{1}{2}$ International $\frac{1}{4}$ -inch rule. $\frac{2}{1}$ Includes paper birch. $\frac{3}{4}$ Includes soft maple. $\frac{4}{1}$ Includes white oak. $\frac{5}{1}$ Includes ash and cottonwood.

Table 6.--Percent of veneer log production and receipts by species group, Lake States, 1956 and 1984

(In percent)

	Produ	uction	Rece	ipts
Species group	1956	1984	1956	1984
Ash	0.9	2.5	0.8	2.9
Aspen	1.0	13.6	0.9	16.5
Basswood	13.0	3.8	11.5	4.9
Beech	7.2	1.3	6.2	1.1
Birch	25.7	9.3	30.9	11.0
Cottonwood	2.7	1.6	3.2	2.1
Elm	12.2	•9	11.1	.8
Hard maple	25.4	20.3	23.8	21.5
Soft maple	4.7	2.9	5.1	3.5
0ak	5.7	30.2	5.4	34.5
Other species	1.5	13.6	1.1	1.2
All species	100.0	100.0	100.0	100.0

Table 7.--Production and disposition of softwood and hardwood veneer mill residue by type of residue and use, Lake States, 1984

(In thousand tons green weight)

			Wood r	esidue				
State and	Tot	al	Coa	rse ^{1/}	Fi	ne ^{2/}	Ва	rk
type of use	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Wisconsin								
Fiber products		9.84		2.26		7.58		
Industrial fuel	0.20	48.21		15.36	0.20	32.85	0.09	18.39
Domestic fuel	.13	3.33	0.13	3.07		.26		.12
Miscellaneous <u>3</u> /		6.13		5.23		•90		.16
Not used4/								.28
Total	.33	67.51	.13	25.92	.20	41.59	.09	18.95
Minnesota								
Industrial fuel		5.87		2.23		3.64		1.68
Domestic fuel		.12		.12				
Not used4/		.15				.15		.04
Total		6.14		2.35		3.79		1.72
Michigan								
Fiber products		•65				.65		.26
Industrial fuel		16.17		.08		16.09		7.06
Domestic fuel		6.97		6.97				.24
Miscellaneous <u>3</u> /		3.94		3.65		.29		.22
Not used4/		.14				.14		.06
Total		27.87		10.70		17.17		7.84
All Lake States								
Fiber products		10.49		2.26		8.23		.26
Industrial fuel	.20	70.25		17.67	.20	52.58	.09	27.13
Domestic fuel	.13	10.42	.13	10.16		.26		.36
Miscellaneous <u>3</u> /		10.07		8.88		1.19		.38
Not used4/		.29				.29		.38
Total	.33	101.52	.13	38.97	.20	62.55	.09	28.51

 $[\]frac{1}{2}$ Suitable for chipping, such as veneer cores.

 $[\]frac{2}{N}$ Not suitable for chipping, such as veneer clippings.

 $[\]frac{3}{\text{Livestock}}$ bedding, mulch, small dimension, and specialty items.

 $[\]frac{4}{}$ Includes residue burned as waste.

Table 8.--Production and imports of veneer logs, Central States, 1984 $(\text{In thousand board feet})^{\underline{1}/}$

			Produc [*]	tion by	States ^{2/}			Imports	
Species and destination	Total receipts 3/	Illinois	Indiana	Iowa	Missouri	Regional total	Lake States	Other U.S.	Total imports
Pine									
Indiana	304							304	304
Illinois-Iowa-Missouri	72							72	72
Exported4/			21	22		43			
Total	376		21	22		43		376	376
Ash									
Indiana	585	38	334			372	3	210	213
Illinois-Iowa-Missouri	19	21	110		3	3	16		16
Exported4/		31	119			150			
Total	604	69	453		3	525	19	210	229
Basswood									
Indiana	14		14	120		14			
Exported4/		11		130		141			
Total	14	11	14	130		155			
Beech									
Exported4/			116			116			
Total			116			116			
Black cherry									
Indiana	1,098		13			13	91	994	1,085
Illinois-Ļowa-Missouri	33						33		33
Exported4/			22			22			
Total	1,131		35			35	124	994	1,118
Butternut									
Illinois-Iowa-Missouri	1						1		1
Total	1						1		1
Cottonwood									
Indiana	415		326			326		89	89
Illinois-Iowa-Missouri	1,732	11			1,653	1,664		68	68
Exported4/	´		57	23	,	80			
Total	2,147	11	383	23	1,653	2,070		157	157
Elm									
Indiana	72		20			20	46	6	52
Illinois-Iowa-Missouri	50			5		5	45		45
Total	122		20	5		25	91	6	97
Gum									
Indiana	184		166			166		18	18
Exported4/					3	3			
Total	184		166		3	169		18	18
	107		100			107			
Hard maple Indiana	551		73			73	466	12	478
Illinois-Iowa-Missouri	18		/3			/3	18	12	18
Exported4/			146	25		171			
Total	569		219	25		244	484	12	496
Pecan	303		219				707		730
recan Indiana	3,778	53	377		34	464	3	3,311	3,314
Exported4/	3,770	39	37 7 49		14	102		3,311	3,314
		92	426		48	566	3	3,311	3,314
Total	3,778	92	420		48	200	3	3,311	3,314

			Produc	tion by	States ^{2/}			Imports	t dem sperioder den der eine seperoper ger ger g
Species and destination	Total receipts 3/	Illinois	Indiana	Iowa	Missouri	Regional total	Lake States	Other U.S.	Total imports
Red oak Indiana Illinois-Iowa-Missouri Exported ⁴ /	6,932 849 	1 234	2,751 285	 58 557	 89 23	2,752 147 1,099	992 672	3,188 30 	4,180 702
Total	7,781	235	3,036	615	112	3,998	1,664	3,218	4,882
Soft maple Indiana Illinois-Iowa-Missouri Exported ⁴ /	377 14 	 	315 	 31	 	315 31	3 14 	59 	62 14
Total	391		315	31		346	17	59	76
Sycamore Indiana Exported ⁴ /	354		280 49	 	 	280 49		74 	74
Total	354		329			329		74	74
Walnut Indiana Illinois-Iowa-Missouri Exported ⁴ /	3,582 1,099	598 82	1,373 63 1,437	394 386 69	225 350 222	2,590 799 1,810	102 176 	890 124 	992 300
Total	4,681	680	2,873	849	797	5,199	278	1,014	1,292
White oak Indiana Illinois-Iowa-Missouri Exported ⁴ /	9,089 1,278	1,580 62 506	3,094 39 1,204	285 47 61	63 620 1	5,022 768 1,772	87 239 	3,980 271 	4,067 510
Total	10,367	2,148	4,337	393	684	7,562	326	4,251	4,577
Yellow birch Indiana Total	3						3	<u></u>	3
Yellow poplar Indiana Illinois-Iowa-Missouri Exported ⁴ /	621 17 	 17 72	565 			565 17 72	 	56 	56
Total	638	89	565			654		56	56
Other hardwoods Indiana Exported ⁴ / Total	53 53	11 11	16 36 52			27 36 63	2 2	24 24	26 26
All species Indiana Illinois-Iowa-Missouri Exported4/	28,012 5,182	2,281 90 975	9,717 102 3,541	679 496 918	322 2,715 263	12,999 3,403 5,697	1,798 1,214	13,215 565 	15,013 1,779
Total	33,194	3,346	13,360	2,093	3,300	22,099	3,012	13,780	16,792

 $[\]frac{1}{I}$ International 1/4-inch rule

^{2/}Vertical columns of figures under box heading "Production by States" present the amount of veneer logs cut in each State.

 $[\]frac{3}{}$ Production minus exports plus imports.

 $[\]frac{4}{\text{Veneer}}$ logs shipped to States outside the Central States and to Canada.

Table 9.--Veneer log production and receipts in the Central States by species, 1980 and 1984 (In thousand board feet) $\frac{1}{2}$

		Production			Receipts	
Species	1980	1984	Change	1980	1984	Change
Pine		43	43	373	376	3
Ash	506	525	19	507	604	97
Basswood	100	155	55	7	14	7
Black cherry	76	35	-41	1,000	1,131	131
Cottonwood	1,526	2,070	544	1,662	2,147	485
Elm	52	25	-27	696	122	-574
Gum	235	169	-66	254	184	-70
Hard maple	249	244	-5	615	569	-46
Pecan (hickory)	566	566	0	3,404	3,778	374
Red oak	3,418	3,998	580	4,360	7,781	3,421
Soft maple	226	346	120	238	391	153
Sycamore	270	329	5 9	293	354	61
Walnut	5,104	5,199	95	5,901	4,681	-1,220
White oak	8,582	7,562	-1,020	12,583	10,367	-2,216
Yellow-poplar	825	654	-171	957	638	-319
Other hardwoods	84	179	95	65	57	-8
All species	21,819	22,099	280	32,915	33,194	279

 $[\]frac{1}{I}$ International ¼-inch rule.

Table 10.--Veneer log production by species group for selected years, Central States, 1956-1984 (In million board feet) $\frac{1}{2}$

		Species group											
Year	All species	Cotton- wood	Elm	Hard maple	Pecan (hickory)	Red oak	Soft maple	Syca- more	Walnut	White oak	Yellow- poplar	Other species	
1956	33.1	8.0	0.9	0.8	0.1	1.1	1.8	0.6	10.6	3.4	1.6	4.2	
1958	32.4	8.9	.6	1.1	.1	1.0	.5	•5	10.8	2.6	1.1	5.2	
1960	39.9	11.2	2.0	1.2	.1	1.5	1.2	2.5	13.2	1.6	1.6	3.8	
1963	38.0	7.4	7	1.6	.8	.9	1.0	1.8	15.5	1.4	2.3	4.6	
1966	36.7	6.2	$\frac{2}{1}$.7	1.4	1.1	2.3	.5	1.0	14.7	1.9	3.0	3.9	
1968	37.0	4.1	.7	1.3	3.0	2.1	.4	1.2	16.1	3.6	1.3	3.2	
1970	23.5	4.8	.6	.8	1.5	1.3	.5	1.3	8.1	1.7	.8	2.1	
1972	26.2	3.5	.5	1.1	2.4	1.7	.4	.7	10.0	3.3	1.2	1.4	
1974	29.1	4.0	.7	1.1	1.2	2.9	.6	.9	8.5	5.2	1.2	2.8	
1976	27.4	2.3	<u>3</u> /	.4	1.0	3.8	.9	.6	7.5	7.7	1.3	1.9	
1980	21.8	1.5	.1	.2	•6	3.4	.2	.3	5.1	8.6	.8	1.0	
1984	22.1	2.1	3/	.2	.6	4.0	.3	.3	5.2	7.6	.7	1.1	

 $[\]frac{1}{}$ International $\frac{1}{4}$ -inch rule.

^{≟′}Estimated.

 $[\]frac{3}{\text{Less}}$ than 50 thousand board feet.

Table 11.--Veneer log receipts by species group for selected years, Central States, 1956-1984 (In million board feet) $\frac{1}{}$

							Species	group				
Year	All species	Cotton- wood	- Elm	Hard maple	Pecan (hickory)	Red oak	Soft maple	Syca- more	Walnut	White oak	Yellow- poplar	Other species
1956	44.4	10.9	0.8	1.2	0.6	1.3	8.0	1.3	11.4	6.7	2.8	6.6
1958	41.6	10.2	.6	1.7	.3	1.3	.3	1.2	13.0	4.8	1.9	6.3
1960	50.2	10.4	1.0	2.9	•2	1.4	•5	2.3	17.1	3.6	2.8	8.0
1963	52.2	8.6	1.0	3.1	1.6	.9	.8	2.0	21.2	2.3	2.8	7.9
1966	48.2	6.7	$\frac{2}{1.0}$	3.6	1.6	2.0	.4	1.2	17.9	2.1	4.4	7.3
1968	48.8	5.7	1.0	2.7	4.9	2.3	.5	1.1	18.4	5.2	1.9	5.1
1970	28.0	4.7	•5	1.3	3.0	.8	.6	1.4	10.0	2.0	1.1	2.6
1972	35.1	4.9	.3	2.4	5.7	1.6	•5	.9	11.0	4.0	1.2	2.6
1974	39.7	5.6	.7	1.3	3.6	3.8	.7	1.0	10.1	7.7	1.3	3.9
1976	36.1	2.6	.2	1.4	4.3	3.1	.5	.6	8.3	10.8	1.4	2.9
1980	32.9	1.7	.7	.6	3.4	4.4	.2	.3	5.9	12.6	.9	2.2
1984	33.2	2.1	.1	.6	3.8	7.8	.4	.3	4.7	10.4	.6	2.4

 $[\]frac{1}{2}$ /International 1/4-inch rule. $\frac{2}{2}$ /Estimated.

Table 12.--Percent of veneer log production and receipts by species group, Central States, 1956 and 1984

(In percent)

	Prod	uction	Rece	ipts
Species group	1956	1984	1956	1984
Cottonwood	24.2	9.4	24.5	6.5
Elm	2.7	.1	1.8	.4
Hard maple	2.4	1.1	2.7	1.7
Pecan (hickory)	0.3	2.6	1.4	11.4
Red oak	3.3	18.1	2.9	23.4
Soft maple	5.5	1.6	1.8	1.2
Sycamore	1.8	1.5	2.9	1.1
Walnut	32.0	23.5	25.7	14.1
White oak	10.3	34.2	15.1	31.2
Yellow-poplar	4.8	2.9	6.3	1.9
Other species	12.7	5.0	14.9	7.1
All species	100.0	100.0	100.0	100.0

Table 13.--Production and disposition of softwood and hardwood veneer mill residue by type of residue and use, Central States, 1984

(In thousand tons green weight)

			Wood r	esidue				
State and	Tot	al	Coa	rse ^{1/}	Fi	ne ^{2/}	Ва	rk
type of use	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Indiana								
Fiber products	0.03	3.77	0.03	3.77				
Industrial fuel	•58	47.32	.20	17.45	0.38	29.87	0.17	13.58
Domestic fuel		.33		.33				
Miscellaneous <u>3</u> /		2.45		.04		2.41		2.23
Not used4/		2.35				2.35		
Total	.61	56.22	.23	21.59	.38	34.63	.17	15.81
Illinois-Iowa-Misso	uri							
Industrial fuel		5.69		2.18		3.51		1.60
Domestic fuel_		.36		.36			.03	.74
Miscellaneous <u>3</u> /	.02	.50	.01	.37	.01	.13		
Not used <u>4</u> /	.13	3.83	.05	1.07	.08	2.76	.01	•58
Total	.15	10.38	.06	3.98	.09	6.40	.04	2.92
All States								
Fiber products	.03	3.77	.03	3.77				
Industrial fuel	.58	53.01	.20	19.63	.38	33.38	.17	15.18
Domestic fuel		.69		.69			.03	.74
Miscellaneous <u>3</u> /	.02	2.95	.01	.41	.01	2.54		2.23
Not used4/	.13	6.18	.05	1.07	.08	5.11	.01	•58
Total	.76	66.60	.29	25.57	.47	41.03	.21	18.73

 $[\]frac{1}{2}$ Suitable for chipping such as veneer cores.

 $[\]frac{2}{N}$ Not suitable for chipping such as veneer clippings.

 $[\]frac{3}{\text{Livestock}}$ bedding, mulch, small dimension, and speciality items.

 $[\]frac{4}{I}$ Includes residue burned as waste.

Blyth, James E.; Smith, W. Brad.

Veneer industry and timber use, North Central Region, 1984. Resour. Bull. NC-99. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1986. 16 p.

Shows 1984 veneer log production and receipts by species in the Lake States (Michigan, Minnesota, and Wisconsin) and in the Central States (Illinois, Indiana, Iowa, and Missouri). Comparisons are made with 1980 data. Includes tables showing veneer log production and receipts (for selected years) since 1946 in the Lake States and since 1956 in the Central States.

KEY WORDS: Imports, exports, veneer mills, wood residue, bark.

